

Amendments to the Claims

Please amend the claims to read as follows:

1. (Currently Amended) A reusable vacuum bag for forming polymeric materials against a mold, comprising:

a) a fabric ~~layer containing~~ reinforced with flexible reinforcement fibers to withstand multiple mold cycles; and

b) ~~a release surface integrally disposed on at least first side of a chemically non-reactive and non-adhering material forming a release surface to separate~~ said fabric layer from the polymeric materials formed against the mold.

~~said vacuum bag capable of withstanding multiple mold cycles of a vacuum of less than ambient pressure without significant leakage.~~

2. (Currently amended) The vacuum bag of claim 1 wherein the material forming said release surface comprises: silicone, fluorocarbon, PPS, PEEK, polyketone, PEI, polyamide resin, or a combination thereof.

3. (Currently Amended) The vacuum bag of claim 2 wherein said fluorocarbon ~~resin~~ comprises: PTFE, FEP, ETFE, PFDV, ECTPF, PFA resin, or a combination thereof.

4. (Currently Amended) The vacuum bag of claim 1 wherein said fabric ~~layer~~ comprises aramid, glass, graphite, carbon fiber, or a combination thereof.

5. (Currently Amended) The vacuum bag of claim 4 wherein said material forming said release surface further comprises a fiber, coating or layer.

6. (Currently Amended) The vacuum bag of claim 1 wherein said fabric ~~layer~~ comprises a woven or nonwoven fabric.

7. (Currently Amended) The vacuum bag of claim 1, wherein said fabric comprises two fabric layers providing a double layer vacuum bag, ~~further comprising: a second layer in conjunction with said fabric layer.~~

8. (Currently Amended) The vacuum bag of claim 1, wherein the material has a shape to distribute the polymeric materials during formation thereof, ~~further comprising: a resin distribution system for permitting resin flow preferentially beneath said fabric layer.~~

9. (Currently Amended) The vacuum bag of claim 1 ~~8~~ ~~wherein said resin distribution system~~ the wherein the material comprises a network of veins to distribute the polymeric materials during formation thereof.

10. (Currently Amended) The vacuum bag of claim 8 wherein said network of veins comprises one or more protrusions on ~~a molded part facing side of~~ said vacuum bag.

11. (Currently Amended) The vacuum bag of claim 1 wherein said fabric ~~layer~~ is a flexible ~~performable~~ layer.

12. (Currently Amended) The vacuum bag of claim 1 wherein said fabric ~~layer~~ is a semi-rigid layer.

13. (Original) The vacuum bag of claim 12 wherein said semi-rigid layer has a three dimensional mold surface.

14. (Currently Amended) The vacuum bag of claim 1 wherein said fabric ~~layer~~ contains both flexible portions ~~performable~~ and semi-rigid portions.

15. (Currently Amended) The vacuum bag of claim 1 further comprising an integral flat flange along a perimeter of the vacuum bag.

16. (Original) The vacuum bag of claim 15 wherein said integral flat flange is configured to mate with a perimeter of a mold.

17. (Currently Amended) The vacuum bag of claim 1 wherein said fabric ~~layer~~ comprises a translucent or transparent material for observance through said fabric ~~permitting~~

~~the observance of resin flow and enabling~~ and for passage of UV light through said fabric. said vacuum bag.

18. (Currently Amended) The vacuum bag of claim 1 wherein said ~~bag~~ fabric further comprises one or more resin feed channels.

19. (Currently Amended) The vacuum bag of claim 1, further comprising: one or more vacuum exhaust ports extending through the fabric.

20. (Currently Amended) The vacuum bag of claim 1 wherein said fabric ~~layer is configured~~ comprises two layers to provide a double layer bag.

21. (Original) A method of vacuum assisted resin transfer molding in which a polymeric resin is injected into a mold in which fibrous reinforcement has been placed, said mold having disposed thereon a membrane comprising a fabric layer containing reinforcing fibers, said fabric layer provided with an integral release surface disposed on a first side of said fabric layer; said resin transfer molding being repeated with the same flexible membrane under a vacuum of at least one bar without significant leakage.

22. (Original) The method of claim 21 wherein membrane comprises a flexible performable fabric, semi-rigid fabric, or both.

23. (Original) The method of claim 21 wherein said membrane comprises a semi-rigid fabric comprising a three dimensional mold surface therein.

24. (Original) The method of claim 23 wherein said injecting step comprises injecting a polymeric material through an aperture in said membrane and along said three dimensional mold surface.

25. (Original) The method of claim 21 further comprising disposing high strength glass in said mold prior to said polymer material injecting step.

26. (Original) The method of claim 21 wherein said mold is a fixed female mold and said membrane is flexible.

27. (Original) The method of claim 24 wherein said polymer material injecting step comprises infusion of said polymer material through said flexible membrane and along a plurality of resin veins.

28. (Currently Amended) A reusable vacuum bag for forming polymeric materials against a mold, comprising: a fabric ~~layer containing~~ reinforced with reinforcing fibers to withstand multiple mold cycles without significant leakage while under a vacuum of at least one bar; a non-stick release layer extending over at least one side of said fabric; and

said fabric being formed with means for distributing the polymeric materials over a surface of said fabric.

~~disposed integrally with at least a first side of said fabric layer; said vacuum bag comprising a preferential resin flow means disposed on said first side;~~

~~said vacuum bag capable of withstanding multiple mold cycles of a vacuum of at least one bar without significant leakage.~~

29. (Currently Amended) A reusable vacuum bag for forming a polymeric material against a mold, comprising:

a fabric layer ~~containing~~ reinforced with flexible reinforcing fibers ~~and a nonstick release material bonded to at least on a first side of said fabric layer; said vacuum bag capable of withstanding to withstand~~ multiple mold cycles of a vacuum of less than ambient pressure without significant leakage;

said fabric layer having bonded thereto a release material forming a release surface to separate said fabric layer from the polymeric material formed against the mold, and

said fabric layer ~~and~~ being transparent or translucent ~~whereby a flow or resin can be observed for observation~~ through said vacuum bag.

30. (Currently Amended) A reusable vacuum bag comprising:

a fabric layer ~~containing~~ reinforced with high strength reinforcing fibers to withstand multiple mold cycles of a vacuum of less than ambient pressure without significant leakage; and

at least one side of said fabric layer having a non-stick fluorocarbon-based ~~fluorocarbon-based~~ release layer bonded to ~~a first side of said fabric layer~~ thereto; and

said vacuum bag forming a shaped cavity for shaping polymeric materials against a mold ~~having a three dimensional shape formed therein. and being capable of withstanding multiple mold cycles of a vacuum of less than ambient pressure without significant leakage.~~

31. (Currently Amended) The reusable vacuum bag of claim 30, wherein ~~said release layer is bonded to both sides~~ each side of said fabric layer has a corresponding said release layer bonded thereto.

32. (Currently amended) The reusable vacuum bag of claim 31, wherein said release layers comprise ~~layer comprises a pair of~~ tri-component fluorocarbon films heat-bonded to ~~each major surface~~ respective major surfaces of said fabric layer.

33. (Currently amended) The reusable vacuum bag of claim 32, wherein each of said tri-component fluorocarbon films ~~comprise~~ comprises a FEP-PTFE-FEP composite film having a thickness of less than 5 mil.

34. (Original) A method of bag molding a polymeric material in which a consolidation of said material in a mold is affected by the application of fluid or gas pressure through a flexible membrane comprising a fabric layer containing high strength reinforcing fibers, said fabric layer having disposed thereon, a release material bonded on at least a first side of said fabric layer; said bag molding being repeated with the same flexible membrane under a vacuum of at least one bar without significant leakage.